

REMARKS

The application has been reviewed in light of the Office Action dated September 21, 2004. Claims 26-50 were pending. By this Amendment, new claims 51-54 have been added, and claims 26, 30, 33-36, 38, 39 and 50 have been amended to place the application in better form for examination and/or to clarify the claimed invention. Accordingly claims 26-54 are now pending, with claims 26, 30, 33, 38, 39, 50, 51 and 53 being in independent form.

The disclosure was objected to as having informalities. The Office Action stated that the instant application is a continuation of U.S. Application No. 10/102,464, and that therefore a specific reference to the prior application is required in the specification.

By this Amendment, the specification has been amended to include a specific reference to prior U.S. Application No. 10/102,464.

Accordingly, withdrawal of the objection to the disclosure is requested.

Claims 34-36, 39 and 40 were objected to as having informalities.

By this Amendment, the claims have been amended to correct the informalities.

Accordingly, withdrawal of the objection to claims 34-36, 39 and 40 is requested.

Claims 26-50 were rejected under the judicially created doctrine of obviousness-type double patenting as purportedly unpatentable over claims 1-25 of U.S. Patent No. 6,682,185.

Applicants submit herewith a terminal disclaimer, thus obviating the double patenting rejection.

Withdrawal of the double patenting rejection is requested.

Claims 26-29, 32, 34-37, 42, 43 and 47-50 were rejected under 35 U.S.C. §102(e) as purportedly anticipated by U.S. Patent No. 6,260,962 to Yano et al. Claim 31 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Yano. Claims 41 and 44-46 were rejected

under 35 U.S.C. §103(a) as allegedly unpatentable over Yano in view of U.S. Patent No. 6,260,962 to Fujii et al.

Applicants have carefully considered the Examiner's comments and the cited art, and respectfully submit that independent claims 26 and 50 are patentable over the cited art, for at least the following reasons.

This application relates to liquid drop jet heads used for an ink jet recording apparatus. Typically, a liquid drop jet head includes an ink supply opening part and a common liquid chamber connected to each of plural liquid passages. Ink is supplied from outside of the ink jet head to the common chamber through the ink supply opening part. However, the conventional configuration of the common liquid chamber relative to the ink supply opening part and liquid passages does not facilitate sufficient supply of ink to a liquid passage remote from the ink supply opening part.

Applicants devised an improved liquid drop jet head wherein a width of the common liquid room decreases with an increase of a distance from the supply opening part, and the supply opening part is placed at an end part of the common liquid room in a direction of a line of the liquid rooms. As discussed in the application at, for example, page 26, line 23 through page 27, line 16, speed of ink dispensed is maintained and bubble discharge (a problem often encountered by conventional liquid drop jet heads) can be improved. Independent claims 26 and 50 have been amended by this Amendment to clarify these features.

Yano, as understood by Applicants, is directed to a liquid jetting device which is provided with an air bubble introducer for introducing a non-disappearable air bubble into the common liquid chamber before start of liquid ejection. The air bubble purportedly functions as a buffer to absorb pressure during discharge to restrict flow of the ink in the direction opposite to the

discharge port.

The Office Action states that a width of the common liquid chamber 1301 of Yano decreases with an increase of a distance starting from the ink receiving port 1500 moving towards the liquid passages 41b.

However, the ink receiving port 1500 of Yano is provided at a central part of the common chamber 1301, in a direction of a line of the liquid passages. Thus, ink entering the common chamber can flow to either side of the central portion, and liquid passages at one end of the line under some circumstances may experience poor jetting action.

Applicants find no teaching or suggestion in Yano of a liquid drop jet head wherein a width of the common liquid room decreases with an increase of a distance from the supply opening part, and the supply opening part is placed at an end part of the common liquid room in a direction of a line of the liquid rooms, as set forth in amended claims 26 and 50.

Fujii, as understood by Applicants, is directed to an ink jet head having therein an electrostatic actuator. The Office Action cited Fujii as disclosing a vibration board forming the wall surface of the liquid room and an electrode facing the pressure generating part so that the vibration board is deformed by an electrostatic force.

Applicants do not find teaching or suggestion in the cited art, however, of a liquid drop jet head wherein a width of the common liquid room decreases with an increase of a distance from the supply opening part, and the supply opening part is placed at an end part of the common liquid room in a direction of a line of the liquid rooms, as set forth in amended claims 26 and 50.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 26 and 50, and the claims depending therefrom, are patentable over the cited art.

Applicants also do not find teaching or suggestion in the cited art of a liquid drop jet head wherein a width of the common liquid room decreases with an increase of a distance from the supply opening part, and the common liquid room has a wall surface at a liquid room side of the common liquid room, and the wall surface has a configuration of saw teeth on a plane level, as set forth in new claims 51 and 53.

The Office Action indicates that claims 30, 33 and 38-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


By this Amendment, claims 30, 33, 38 and 39 have been amended by rewriting the claims in independent form including all of the limitations of the base claim and any intervening claims. Claim 40 depends from claim 39 and therefore no amendments thereto have been made.

Accordingly, Applicants respectfully submit that the application is now in condition for allowance.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Office is hereby authorized to charge the additional claims fees, as well as any additional fees that may be required, in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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